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A COLLEGE MICROSCOPE.

WILLIAM H. SEAMAN, M. D.

It may be remembered that in March, 1888, "*Science*" published an article by me, maintaining the excellence of American microscopes. The train of thought inspired by that article led me to make working drawings of an instrument with some novel features. These were shown to a few friends at Columbus, and were unfortunately lost from my coat pocket at Buffalo. I did not have time to reproduce them till recently, and hoped to have the instrument itself here, but it is not quite done.

The figure shows the features which are essential, in my judgment, to a good college microscope. It will also be well adapted to the average professional man and amateur. A tripod base, rather thin, single foot back, wide open in front. The pillar may be single or double, but must have thumbscrew at the joint to hold it firm at any desired inclination; the mirror on swinging arm, adapted to carry a condenser if desired, and the stage just high enough to admit a short Abbe condenser; the center of rotation of the mirror bar just above the stage. The arm is a box-arm, Jackson model, shown with one side removed. The barrel should be of the short type, and is supported on an X-shaped bar, that slides between the V's on each inside of the box-arm, as shown by detail section. A steel tape or picture cord is fastened at each end of the X-bar, one end being the tightening screw F. This tape is wound once round the grooved wheel A, which is turned by the usual milled head and gives the coarse adjustment to the instrument. On each side of the wheel A and on the same axis are two disks, B B, that pinch the wheel A between them by a screw and act as a friction clutch. These disks are prolonged downward in the curved bar against which presses the spring E. The micrometer screw D forces the bar against this spring, and, turning the wheel A by friction, forms the fine adjustment. Every part of the instrument is adjustable for wear. The stage is a ring, with a plate of glass dropped in it. A Zentmayer sliding holder may be used. The condenser is not shown in detail, as no special features are claimed for it. I am aware that friction fittings are not new; one was described by Mr. Wenham, vol. VII,

Q. J. M.; also a chain movement was made by Pike or Grunow, of New York city, about 1850. Nevertheless, these devices do not appear to me to be as useful as that here described. The steel tape has proved successful in mechanical combinations where racks, etc. have failed, and it may succeed in the microscope. The micrometer screw D may be replaced by a cam.

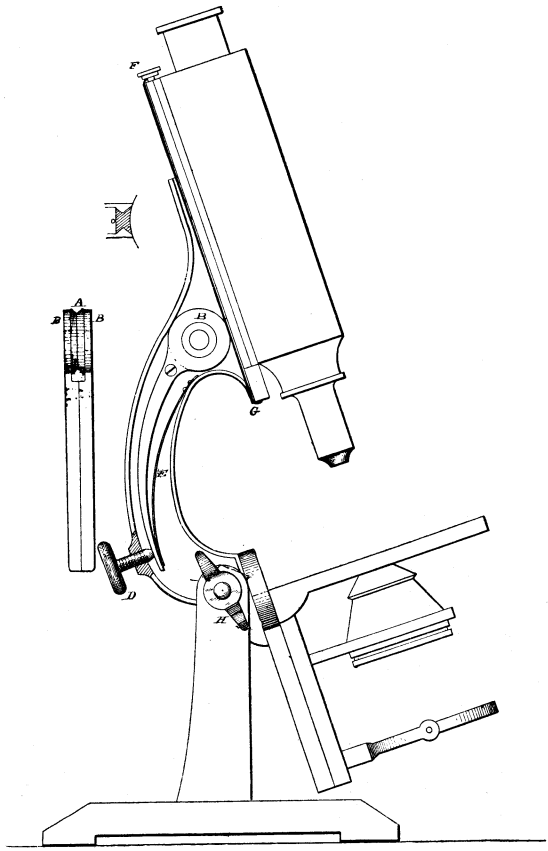

FIG. 1.

A microscope built on the plan here outlined need not be expensive, and would be capable of all but the highest class of angular work. It may be conveniently used in its simplest form, and is at the same time adapted for the successive addition of those accessories essential to the prosecution of advanced researches with the instrument. Should it prove to answer my expectations I may refer to it again.